

2007 LDEQ CONSTRUCTION ADVISORY DOCUMENT

Introduction

This document is composed of both administrative and general technical guidance and is designed to assist regulated facilities in evaluating and making decisions regarding proposed construction activities that may occur in areas of contamination. In addition to the elements included in this advisory, decisions should be made based on site history, facility knowledge of process, and best professional judgment.

Administrative Objectives

Applicability

This advisory applies to all generators, disposers, treaters and storers of hazardous and/or non-hazardous wastes, and any other person or entity subject to the provisions of Subtitle II of Title 30 of the Louisiana Revised Statutes, otherwise known as the Environmental Quality Act (the Act). It is not program-specific, i.e., it applies to any and all contaminants whether characterized hazardous or non-hazardous, or any other contaminants in any other regulatory program over which the Department has authority.

Regulatory References

This advisory does not relieve any regulated facility of applicable notification regulations under the Louisiana Environmental Regulatory Code (ERC), Title 33, Part I., nor any other applicable requirements under the ERC.

Technical Objectives

General Considerations

Under this advisory, construction projects planned at regulated facilities should be reviewed with the focus of the evaluation on whether the activities will adversely affect the existing soil and/or groundwater quality or impede any proposed or ongoing assessment and/or remedial activities in the area(s) of construction.

Protocols for Review of Projects and Decision-Making

Appropriate qualified staff of regulated facilities/environmental consultants should evaluate construction activities (i.e., construction of foundations/slabs, excavation work, and/or installation of footings, pilings,

drilled shafts or other support structures) that may occur in areas of contamination. The following information should be considered by the facility.

Project Information Review

Proposed Site History

This should include review of pre-existing operating and/or waste management facilities, existing operating and/or waste management facilities, land history, previous environmental assessments conducted in the area(s) of interest, site maps, aerial photographs, etc. Ongoing environmental activities at the site should also be reviewed. For existing and former operations and productions, the raw materials, intermediates, products, and wastes should be considered. This should result in characterization of the potential contaminants which may be present in the subsurface in the area(s) of interest.

Known Contamination

Determine if contamination is known to exist at or near proposed area(s) of construction. This should include a review all site assessment (soil, groundwater, sediment) data (past and present), groundwater monitoring data, and/or other data such as spill reports for that area and surrounding areas.

Determination of Appropriate Foundation Construction

Process of determination of appropriate foundation design should include consideration of site history/use review and any existing subsurface data or that obtained during the planning and design process, and any mitigation measures which may be required for an impacted area. Mitigation measures should be appropriate for the contaminant(s) present.

Existing Water Supply Wells

Determine if there are any active or abandoned water supply wells located on the plant/facility property. Old and/or out-of-service water wells could serve as conduits for groundwater contamination and must be addressed under the LDEQ/LDOTD Handbook for Construction of Geotechnical Boreholes and Groundwater Monitoring systems (December, 2000) and/or applicable LDOTD regulations for water wells. Additionally, any unregistered monitoring/water wells on the facility site must be reported to LDOTD.

Guidelines for Evaluation of Information

Existing Monitoring/Assessment Data

Although all data should be evaluated, recent soil and/or groundwater monitoring data should be given preferential consideration. However, as per that data evaluation, sample points should be in the immediate vicinity of the proposed construction area. If the data is outdated, consideration should be given to the likelihood of contamination for that area (age of facility, type of operations, or if any spills have occurred since the samples were collected, etc.) to determine if additional sampling would be appropriate.

Assessment Data Unnecessary

Assessment data may not be necessary for some projects. This determination is made at the discretion of the facility employing the underlying logic of this guidance. Following are some examples.

If a project will involve only minimal foundation work ($< \approx 1,000$ square feet total for the project and $< \approx 4$ feet below grade in fill material). However, if native soils are encountered $< \approx 4$ feet below grade sampling may be appropriate.

Assessment work conducted at a proposed project is adequate for evaluation of project area.

The project area is currently and was historically undeveloped, non-industrial land (documentation of these conditions should be available). However, if the project area is immediately adjacent to industrial development or there is evidence of agricultural wastes (farmer's mixing area, fuel storage, waste piles, etc), consideration should be given for assessment.

Assessment appropriate

If it is determined that an assessment is appropriate, it should involve a sufficient number of borings/monitoring wells/piezometers/CPT's, etc., in the immediate area(s) of interest to characterize the area(s) of interest and possible subsurface impacts to that area. Both soil and groundwater samples should be collected from the borings/wells, etc., and analyzed for site-specific parameters. Parameter selection should follow logically

from knowledge of site history, facility process, known impacts, etc. All sampling should be conducted in accordance with approved USEPA and LDEQ protocols for respective media. Results from assessment work should be used in decisions regarding the need for mitigation and/or monitoring measures if determined to be necessary. Additional assessment may be advisable to limit an area where protective measures are necessary.

Existing Contamination

If there is known contamination in the proposed construction site, the facility should consider how the proposed construction will affect existing subsurface conditions. Of particular importance are presence of non-aqueous phase liquids (NAPL) constituents and/or if any enclosed occupied structures exist within the area(s) of interest or could otherwise be impacted. Mitigation measures (cased piles or other protective methods) must be employed for pilings or other deeper structures proposed through NAPL which will penetrate water-bearing zones. Likewise appropriate mitigation measures should also be employed in areas where enclosed occupied structures exist above known NAPL concentrations.

In cases such as areas with free-phase contamination with piling or other deep supports proposed, and in areas of high concentrations of constituents beneath enclosed occupied structures, strong consideration should be given to relocating the project to uncontaminated areas.

Consideration should also be given to how the proposed construction will impact future or ongoing assessment work and/or remedial activities.

Post-construction Assessment

In instances of new discoveries of subsurface contamination, post-construction assessment may be required by the Department, as generated by facility compliance with departmental notification regulations. The purpose of this assessment would be to determine the rate and extent of the impact to the subsurface and may require remedial action if required by the Department.

REFERENCES/WEB LINKS

Louisiana Environmental Quality Act, Subtitle II of Title 30 of the Louisiana Revised Statutes

Louisiana Environmental Regulatory Code

LDEQ/LDOTD Handbook for Construction of Geotechnical Boreholes and Groundwater Monitoring systems (December, 2000)

Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. National Groundwater and Contaminated Land Centre Report NC/99/73

http://www.environment-agency.gov.uk/commondata/acrobat/nc_99_73_piling_.pdf

<http://publications.environment-agency.gov.uk/pdf/SCHO0202BISW-e-e.pdf>

Piling in Contaminated Ground: Environmental Impact, Regulatory Concerns and Effective Solutions. F.J Westcott, J.W.N. Smith, C.M.B Lean. Engineering Geology 70 (2003), pp. 259-268.